

**CONTROLLING METHOD FOR PIEZOELECTRIC MOTOR**

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Inventor(s): KUMAGAI TOMOKO; others: 04  
Applicant(s): HITACHI LTD  
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**Abstract**

**PURPOSE:** To accurately displace at a small distance by applying a high frequently voltage to a piezoelectric element at the time of driving it at a long stroke to roughly drive it, and applying a DC voltage thereto to finely drive it.

**CONSTITUTION:** A controlling method for a piezoelectric motor has first confirming a target position  $X_{psi}$ , and detecting a present position  $X_1$ . Then, a deviation  $E$  is obtained, and whether its absolute value is a reference deviation amount  $\epsilon$  or less or not is judged. In case of  $|E| > \epsilon$ , a direction for driving with a signal of the deviation  $E$  is judged, and the motor is driven by a resonance frequency high frequency voltage in a direction  $+$  or  $-$ . Further, in case of  $|E| \leq \epsilon$ , the motor is driven by a DC voltage. The reference deviation amount  $\epsilon$  is defined as a value within the maximum stroke of a drive upon application of the DC voltage. An accurately fine displacement is performed after a position corresponding to the deviation amount.

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